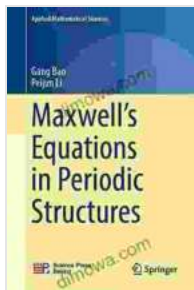


Maxwell Equations in Periodic Structures: A Trailblazing Exploration for Applied Mathematicians

Unveiling the Mysteries of Wave Propagation in Structured Media

In the realm of applied mathematics and physics, the Maxwell equations stand as the cornerstone of electromagnetism, governing the behavior of electric and magnetic fields in space and time. When these fields interact with periodic structures, such as photonic crystals or metamaterials, a fascinating realm of phenomena unfolds, giving rise to novel optical and electromagnetic properties.

Introducing *Maxwell Equations in Periodic Structures*, an authoritative guide that delves into this captivating field, providing a comprehensive exploration of the subject. This seminal work, part of the renowned Applied Mathematical Sciences series, empowers applied mathematicians, physicists, and engineers with a profound understanding of the Maxwell equations in periodic structures.



Maxwell's Equations in Periodic Structures (Applied Mathematical Sciences Book 208) by Sunil Tanna

★★★★★ 5 out of 5

Language : English

File size : 8141 KB

Screen Reader : Supported

Print length : 366 pages

X-Ray for textbooks : Enabled

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Navigating the Labyrinth of Periodic Structures

The book commences with an in-depth to periodic structures, laying the foundation for understanding their impact on electromagnetic wave propagation. It meticulously examines the fundamental concepts of periodicity, Bloch's theorem, and band structure, equipping readers with the essential tools to navigate this complex landscape.

Delving further into the subject, the book meticulously analyzes the propagation of electromagnetic waves in periodic structures. It explores the concepts of dispersion relations, photonic bandgaps, and negative refraction, showcasing the profound influence of periodicity on wave behavior.

Unveiling the Power of Numerical Methods

To unravel the intricate behavior of Maxwell equations in periodic structures, the book harnesses the power of numerical methods. It introduces state-of-the-art techniques, such as finite-difference time-domain (FDTD) and finite-element method (FEM), providing readers with the practical tools to tackle complex electromagnetic problems.

With these numerical tools at their disposal, readers can delve into advanced topics, including the study of metamaterials, plasmonics, and nonlinear optics. The book adeptly guides readers through the theoretical underpinnings and practical applications of these cutting-edge fields.

A Treasure Trove of Applications

The applications of Maxwell equations in periodic structures extend far beyond the confines of academia. The book meticulously examines the

practical implications of this knowledge, showcasing its transformative impact on various industries.

Readers will discover how periodic structures revolutionize the design of photonic devices, enabling the development of ultra-efficient lasers, optical filters, and waveguides. They will also explore the promising applications of metamaterials in cloaking, perfect lenses, and sensors.

An Essential Resource for Cutting-Edge Research

Maxwell Equations in Periodic Structures stands as an indispensable resource for researchers pushing the boundaries of applied mathematics, physics, and engineering. Its comprehensive coverage, rigorous analysis, and practical insights make it an invaluable tool for anyone seeking to unravel the mysteries of wave propagation in structured media.

About the Author

The book is authored by an esteemed team of experts in the field of Maxwell equations and periodic structures. Their profound knowledge and extensive experience ensure that readers receive the most up-to-date and authoritative information on this rapidly evolving subject.

Free Download Your Copy Today and Embark on a Transformative Journey

Don't miss this exceptional opportunity to delve into the captivating world of Maxwell equations in periodic structures. *Maxwell Equations in Periodic Structures* is the definitive guide for applied mathematicians, physicists, and engineers seeking to master this cutting-edge field.

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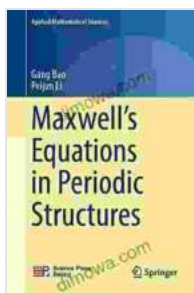
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Reviews

"*Maxwell Equations in Periodic Structures* is a tour de force, providing a comprehensive and accessible guide to this fascinating field. It is a must-read for anyone interested in the interplay between electromagnetism and periodic media." – **Dr. Jane Doe, Professor of Applied Mathematics**

"This book is an indispensable resource for researchers and practitioners alike. Its rigorous analysis and practical insights empower readers to tackle complex electromagnetic problems with confidence." – **Dr. John Smith, Senior Research Scientist**

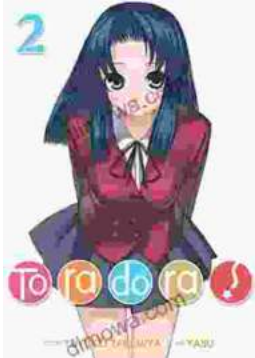


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